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1. A semiconductor passive Q-switch providing variable outputs suitable for use in a laser system to produce laser pulses having defined output characteristics including a lasing wavelength, said Q-switch including variable transmittance means at the lasing wavelength for tuning said output characteristics of said laser pulses.
2. A semiconductor Q-switch according to claim 1 wherein said output characteristics include pulse duration, pulse repetition rate, peak power and averaged output power of said laser pulses.
3. A semiconductor Q-switch according to claim 1 wherein said variable transmittance means includes a wafer having two surfaces that are optically polished, one or both surfaces being optically coated to form a gradient variation of transmission at a wavelength substantially in the IR region.
4. A semiconductor Q-switch according to claim 3 wherein said surfaces are optically coated to form a gradient variation of transmission at a wavelength in the IR region.
5. A semiconductor Q-switch according to claim 1 wherein said variable transmittance means includes a material having variable thickness, such as a wedge.
6. A semiconductor Q-switch according to claim 1 wherein tuning of said output characteristics is effected by translating the Q-switch.
7. A semiconductor Q-switch according to claim 1 wherein tuning of said output characteristics is effected by moving the Q-switch in a curvilinear path.
8. A semiconductor Q-switch according to claim 7 wherein said curvilinear path includes circular rotation.

9. A semiconductor Q-switch according to claim 1 wherein said Q-switch functions simultaneously as an output coupler of said laser system.

5 10. A semiconductor Q-switch according to claim 1 including undoped GaAs.

11. A semiconductor Q-switch according to claim 1 including doped or undoped semiconductor material having properties of saturable absorption in the IR spectrum.

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12. A semiconductor Q-switch according to claim 11 wherein said semiconductor material includes AlGaAs or InP.

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13. A semiconductor Q-switch according to claim 1 having a multiple-quantum-well configuration.

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14. A laser system incorporating a semiconductor passive Q-switch according to claim 1, said laser system including a solid-state laser that is diode-end-pumped, diode-side-pumped, hybrid-pumped, lamp-pumped or pumped with other lasers.

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15. A laser system incorporating a semiconductor passive Q-switch according to claim 1 and adapted to produce a laser output at a wavelength centered at an IR wavelength.

16. A laser system according to claim 15 wherein said IR wavelength is substantially  $1.06\mu\text{m}$ .